PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Continued Implementation Of Asotin Creek Watershed Projects (Fy 2000)

BPA project number: 9401805
Contract renewal date (mm/yyyy): 10/1999 ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Asotin County Conservation District

Business acronym (if appropriate) ACCD

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses
2.4A3, 6.1,6.5, 7.0A-C, 7.1A, 7.6A-D, 7.7A-B, 7.8B&D

FWS/NMFS Biological Opinion Number(s) which this project addresses
n/a

Other planning document references
Asotin Creek Model Watershed Plan (Plan), National Marine Fisheries Service's (NMFS) proposed Snake River Recovery Plan, WA Department of Fish & Wildlife's (WDFW) proposed Salmonid Recovery Plan, CRITFC's Wy Kan Ush Me Wa Kish Wit and the Northwest Power Planning Councils (Council's) Strategy for Salmon.

Short description
Improves on "grass roots" public and agency cooperation and collaboration for habitat restoration on private and public property. Continues to coordinate, assess, and monitor fish and wildlife cost-share programs throughout Asotin Creek watershed.

Target species
spring chinook salmon, summer steelhead, bull trout, and resident rainbow trout

Section 2. Sorting and evaluation

Subbasin
Lower Snake River subbasin, Asotin Creek watershed, WA

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☐ Multi-year (milestone-based evaluation) ☒ Watershed project evaluation	☒ Watershed councils/model watersheds ☒ Information dissemination ☐ Operation & maintenance ☐ New construction ☒ Research & monitoring ☒ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9401806	Implement Tucannon River Watershed Plan to Restore Salmonid Habitat	Sister project on Tucannon River, Tucannon River Model Watershed
9401807	Continue with Implementation of Pataha Creek Model Watershed Plan	Sister Project on Pataha Creek, Pataha Creek Model Watershed
	WA State HB 2496 (HB 2496)	Legislative Funding for Salmonid Restoration Projects
	WA State Cons. Commission (WCC)	Legislative Funding for Upland Cost-Share within Asotin County

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1991	Asotin Creek Water Quality Monitoring Project	Provides overview of water quality conditions in Asotin Creek.
1993	Initiated Collaboration with Citizens and Agency Representatives on Sensitive Fish and Wildlife Resource Issues	Began Landowner Steering and Technical Advisory Meetings for Asotin Creek Model Watershed.
1994	Agricultural Conservation Program Funding from USDA ASCS was used for Demonstration Projects	Initiated riparian fencing and alternative water development projects to encourage landowner participation.
1994	Continued Intensive Tree Planting Efforts on Asotin Creek and Tributaries	On-going efforts to reduce stream temperature, provide shade, cover, and recruitment of LWD.
1994	Completed Watershed Analysis for Asotin Creek Watershed	Identified limiting factors affecting fish and wildlife in basin and recommended actions to accomplish priority restoration projects.
1995	ISCO Water Sampling Units and HOBO Temperature Meters Deployed Throughout the Watershed	Initiated monitoring to track water quality and temperature which were considered limiting factors during watershed analysis
1995	Bonneville Early Action Projects Completed on Asotin Creek	Demonstration projects on winter feeding areas adjacent to creek for animal exclusion and alternative water development.
1995	"Asotin Creek Model Watershed Plan" Completed and Printed.	Serves as guide for resource issues and used as an example of a collaborated approach to watershed restoration.
1995	Continue Tree Planting Efforts with Local Schools, Boy Scouts, Girls Scouts, and Volunteers.	On-going education/outreach to local groups for project support through field work.
1995	WCC Grant Funding for Upland and Riparian Restoration Projects in Asotin Creek Watershed from the WA State Legislature	Initiated upland sediment reduction and riparian practices cost-share to off-set costs for habitat recovery.
1996	Continue Water Quality and Temperature Monitoring throughout Watershed	Completed second year of ISCO and HOBO information for analysis and monitoring of upland and riparian projects.
1996	Continue Tree Planting Efforts with Local Schools and Volunteer Groups	On-going education/outreach and riparian habitat restoration.

1996	Initiated Bonneville Early Action In-Stream Habitat Restoration Projects	Began installing structures to encourage pool and floodplain functions throughout watershed.
1996	Implemented Headgate Park Pre- and Post-Monitoring of Habitat Restoration Projects funded by WCC.	Initiated monitoring program to evaluate pre-habitat coditions and effectiveness and benefits of in-stream structures.
1997	Completed Technical Report for Headgate Park Pre- and Post-Habitat and Resulting Changes in Pool Habitat Availability and Abundance of Juvenile Steelhead.	Provided overview of pool habitat and correlations of juveniles using pools. 59% of juveniles occuppied pool habitat although pools comprised <2% of area and numbers of fish increased with pools size and volume.
1997	Continued Tree Planting Projects	On-going habitat restoration.
1997	Bonneville Funding used for Upland and Riparian Habitat Restoration Projects	On-going sediment reduction practices, riparian fencing, and in-stream pool forming structures.
1997	WCC Funding for Upland Sediment Reduction Practices in Watershed	On-going upland habitat restoration practices to reduce fine sediment intrusion.
1997	Initiated Natural Resource Conservation Service (NRCS) and ACCD Meander Reconstruction Habitat Monitoring.	Provide information regarding lateral channel migration and streambank changes thru installing scour chains, physical descriptions of pool habitat, pebble counts in pool tailouts, and photo documentation.
1998	Intensive Tree Planting Efforts using Mechanical Means to Plant Willow and Cottonwood trees. Students and volunteers planted rooted stock such as ponderosa pine and blue elderberry.	On-going riparian restoration to reduce temperature and stablize streambanks. Approximately 20,000 trees planted over 3 years.
1998	Continue Headgate Park Post-Habitat Restoration Monitoring	On-going monitoring of in-stream structures for utilization and effectiveness.
1998	Continued Bonneville Funding for Upland Sediment Reduction, Riparian/Floodplain Management and In-Stream Restoration Projects.	On-going habitat restoration to reduce erosion, restore riparian area and increase pool habitat. Installed 25,000 ft of riparian fencing and 283 pools over 3 years.
1998	Initiated Water Quality and Storm Event Sampling on Asotin Creek with Washington State University (WSU).	Improved water quality sampling for sediment, temperature, ammonia, coliform, nitrate, total nitrogen, total phosphorus and discharge, which helps identify priorities.

1998	Initiated WDFW Pre- and Post-Habitat Restoration Monitoring	On-going monitoring of all in-stream restoration projects to evaluate habitat and utilization by salmonids.
1998	Completed Reports for 1997 Bonneville Habitat Restoration Projects Including Photo Documentations, Expected Benefits, Descriptions and Costs.	Provided general information regarding Upland Sediment Basin Cleanouts, Riparian Fencing and In-Stream Restoration Projects.
1998	Completed Aerial Surveys of Upland and Riparian Habitat Restoration Projects and Photo Documentation.	Provided insight to expected restoration benefits and also priority areas not recognized from the ground.
1998	Initiated NRCS and ACCD Sediment Basin Monitoring Funded by WCC.	Determine effectiveness of sediment basins in reducing fine sediment delivery to streams.
1998	Continued NRCS and ACCD Meander Reconstruction Monitoring.	On-going check scour chains, cross-sectional profiles, toe pins for lateral migration and continue photo documentation.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Reduce In-Stream Summer Water Temperatures to 18 C	a	Riparian planting projects long-term LWD recruitment for shade and cover
	(Lower Snake Co-Managers Obj. Reduce Pre-Spawner Mortality)	b	Jump-start LWD component by incorporating into streambank and complex habitat restoration projects for complex cover
		c	Increase # of pools and decrease width to depth ratio by installing geomorphic restoration projects in prioritized stream reaches
2	Increase Quantity and Quality of Pools w/LWD to Nine per Mile	a	Install in-stream habitat restoration projects according to geomorphic stream classifications
	(Lower Snake Co-Managers Obj. Increase Juvenile Survival)	A	Continue increasing # of pools w/LWD to improve over-winter survival of juveniles
		B	Decrease width and increase stream depth
		C	Identify cool water refugia and protect and restore in-stream and riparian habitat (Passive).

		D	Develop and/or restore spring-fed, off-channel rearing areas for juvenile salmonids, jump-start LWD component by incorporation into project design
		b	Riparian planting for shade, cover and LWD recruitment
		c	Passive riparian management plans for alternative water & fencing projects
3	Reduce Sediment Deposition in Spawning Gravels by Maintaining or Reducing Cropland Erosion	a	Continue upland cost-share for sediment reduction projects (sediment basins, terraces, strip crops, grass waterways, pasture/hayland planting and direct seeding)
	(Lower Snake Co-Managers Obj. Increase Incubation Success)	b	In-stream structures geomorphically designed to scour and sort spawning gravels & re-establish floodplains for depositional features
		c	Riparian planting for streambank stabilization and LWD recruitment
		d	Riparian management plans for alternative water & fencing projects
4	Continue Coordinating Asotin Creek Model Watershed Project Prioritization and Planning	a	Continue administering, coordinating, and communicating watershed activities
		b	Coordinate citizen/agency task groups to prioritize projects
		c	Develop project proposals and submittals
		d	Submit B.A. to NMFS for concurrence
		e	Produce and report M&E analysis and validation
5	Secure Additional Funding and Cooperative Partnerships	a	Continue matching funds with local and state agencies
		b	Intitiate cost-share programs in priority areas outside the Asotin Creek watershed
6	Provide Watershed I&E Programs to Local Schools, Citizens, and Agency Representatives	a	Continue "Salmon in the Classroom" Envirothon Competion, workshops on assessing and monitoring stream health and hatchery tours.
		b	Coordinate project tours, presentations, and fair display

		c	Complete and report habitat restoration successes and failures
		d	Continue quarterly "Model Watershed Newsletters" and local media coverage of projects
7	Continue Planning, Coordinating, and Implementing Project Assessments and Monitoring	a	Coordinate Citizen/Technical Advisory meetings to prioritize monitoring projects
		b	Fund priority monitoring projects
		c	Continue WSU Water Quality and NRCS Sediment Basin Monitoring
		d	Begin WDFW post-habitat and continue pre-habitat assessments on in-stream restoration projects
		e	Continue 1997 & 1998 NRCS Meander Reconstruction M&E
		f	Begin cold water refugia identification and assessment
		g	Further define reference site conditions
		h	Continue working with Nez Perce Tribe and Salmon Corps to identify restoration projects and alternative funding
		i	Produce and submit reports describing assessments and monitoring results

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/1999	9/2000	Increase total feet of riparian restoration and riparian fencing projects to decrease summer stream temperatures to 18 C throughout watershed.	24,000 trees planted and 25,000 ft of riparian fence installed over three years	30.00%
2	10/1999	9/2000	Increase the number of pools to nine per mile with complex cover to increase salmonid survival at all livestages.	283 pools installed with LWD for cover over three years	15.00%

3	10/1999	9/2000	Increase the number of upland sediment reduction practices to reduce erosion and stabilize streambanks for increased spawning success.	36 sediment basins, 47,000 ft terraces, 6 off-stream watering areas and 25,000 ft riparian fence installed over three years	25.00%
4	10/1999	9/2000	Increase effectiveness of fish and wildlife habitat restoration by coordinating priority watershed restoration.	Completed 3rd year of Model Watershed proj. installation & collaboration	10.00%
5	10/1999	9/2000	Increase presence and effectiveness of restoration efforts with current cost-share programs to off-set project costs to private landowners.	Matching funds from WCC, HB 2496 & Bonneville for cost-share	5.00%
6	10/1999	9/2000	Increase citizen support and stewardship to benefit fish and wildlife restoration in the district through public outreach.	"Salmon in Classroom", Newsletter productions, tours, etc	5.00%
7	10/1999	9/2000	Increase quality and quantity of fish & wildlife restoration projects by monitoring success and failures.	On-going monitoring studies evaluating projects	10.00%
				Total	100.00%

Schedule constraints
Inadequate funding of current cost-share programs. With low market prices landowners need current incentives to partcipate.

Completion date
On-going, Bonneville Funding requested through FY 2005

Section 5. Budget

FY99 project budget (BPA obligated): 239,000.00

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	Technical Lead @ 85% FTE Admin. Assistant @ 20% FTE	%16	37,750
Fringe benefits	Payroll Expenses & Benefits	%5	12,050
Supplies, materials, non-expendable property	Office Supplies, Film & Develop, Copier Lease, & Newsletter Costs	%5	11,000
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel	Mileage, Hotels, & per diem	%2	4,200
Indirect costs		%0	
Subcontractor	Riparian Fencing & Alternative Water Developments	%23	55,000
Subcontractor	Upland Sediment Reduction Practices	%18	44,000
Subcontractor	Riparian Tree & Shrub Planting	%13	30,000
Subcontractor	Continue On-Going Monitoring	%6	15,000
Subcontractor	In-Stream Geomorphic Restoration	%13	30,000
Other		%0	
TOTAL BPA FY2000 BUDGET REQUEST			$239,000

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Bonneville FY 2000	Cash Match - Cost-Share	%30	239,000
HB 2496	Cash Match - Lead Entity & Habitat Restoration Projects	%12	100,000
WCC	Cash Match - Basic Funding & Upland Grant Cost-Share	%8	68,000
Private Landowners	Cash Match - Cost-Share %	%7	55,000
NMFS	In-Stream Restoration & Tree Planting Projects	%6	50,000
NRCS	In-Kind - Office Space, Phone, & Vehicle Use	%4	30,000
U.S. Forest Service	Cash Match - Charley Creek	%2	20,000
Total project cost (including BPA portion)			$801,000

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$235,000	$230,000	$225,000	$220,000

Section 6. References

Watershed?	Reference
☒	Asotin Creek Model Watershed Plan. 1995. Asotin County, Washington.
☒	Barrett, D. 1994. Fish Biologist with cooperative Fisheries and Wildlife Unit of the University of Idaho. Personal Communication
☒	Beschta, R. L., R. E. Bilby, G. W. Brown, L. B. Holtby and T. D. Hofstra. 1987. Stream temperatures and aquatic habitat: Fisheries and Forestry Interactions. P. 191-232.
☒	Bjornn, T.C., D. W. Reiser. 1991. Habitat requirements of salmonids in streams. Pages 83-138 in W. R. Meehan, ed., Influences of forest and rangeland management on salmonid fisher and their habitats, American Fisheries Society Special Publication 19.
☒	Bjornn, T. C., M. A. Brunven, M. P. Molnau, J. H. Milligan, R. A. Klamt, E. Chancho, and C. Schaye. 1977. Transport of granitic sediment in streams and its effects on insects and fish. U of I, Forest, Wildlife and Range Experiment Station Bulletin 17.
☒	Espinosa, A. 1988. Clearwater National Forest Fish Habitat Relationships: Narrative and Methodologies. USDA Forest Service, Orofino, Idaho.
☒	Garrett, J. W. 1996. Installation of fish habitat improvement structures in the Headgate Park reach of Asotin Creek, Washington and resulting changes in pool habitat availability and abundance of juvenile steelhead. Northwest Management, Moscow, Idaho.
☒	Garrett, J. W. 1998. Installation of fish habitat improvement structures subsequent damage or loss by floods, and habitat use by juvenile salmonids in the Headgate Park reach of Asotin Creek, Washington. Northwest Management, Moscow, Idaho.
☒	Konopacky, R. C. 1984. Sedimentation and productivity in a salmonid stream. Doctoral Dissertation. University of Idaho, Moscow.
☒	Moore, Barry C. 1993. Asotin Creek Water Quality Monitoring: 1990 to 1993. Clearwater Company, Pullman, WA.
☒	McIntosh, Bruce A. 1992. Stream survey summary of Asotin Creek and Tucannon River. USFS PNW Research Station, Corvallis, OR.
☒	Mendel, G. 1998. Personal Communication. District Fisheries Biologist with WDFW.
☒	Omernik, Jim. Special Frameworks for Effective Characterizations of Ecosystems and Watersheds. USEPA, Corvallis, OR.
☒	Raleigh, R. F., T. J. Hickman, K. L. Nelson, O. E. Maughan. 1980. Riverine

	habitat evaluations procedures for rainbow trout stream improvement workshop; 1980. USFS and Trout Unlimited: 50-59.
☒	Rosgen, D. L. 1996. Applied fluvial morphology. Wildland hydrology. Pagosa Springs, CO.
☒	Snake River Recovery Plan. March 1995 (proposed) NMFS.
☒	Strategy for Salmon. Vol II. 1992. NWPPC, Portland, OR.
☒	Washington Water Research Center, Washington State University. 1996. Role and effectivenes of Washington State's local conservation districts.
☒	Wild Salmonid Policy. 1997. WDFW, Olympia, WA.
☒	Wy Kan Ush Mi Wa Kish Wit (Spirit of the Salmon). 1995. CRITFC.

PART II - NARRATIVE

Section 7. Abstract

This proposal requests FY 2000 Bonneville funding for *Continued Implementation of Asotin Creek Model Watershed Riparian and Upland Projects* which includes coordinating, planning, and monitoring fish and wildlife habitat projects and a public I&E program. This proposal is consistent with ISRP's recommendations to the Council to support habitat restoration projects and FWP's "Model Watershed's." Asotin Creek remains an important Snake River tributary for anadromous salmonid production in Washington. WDFW resource planning recognizes Asotin Creek as a Genetic Sanctuary for steelhead with a tributary containing the highest juvenile escapement in southeastern Washington. Spring chinook salmon also utilize this watershed, although only one redd was identified during 1998 sampling. This proposal seeks consistent funding for identified riparian and upland restoration priorities until FY 2005 or beyond as identified to document effects.

The *Plan* identifies several variables that limit smolt production in Asotin Creek: high summer stream temperatures, lack of resting and rearing pools, and sediment deposition in spawning gravels.

Specific Lower Snake Co-managers objectives are: 1) reduce pre-spawn adult mortality 2) increase juvenile salmonid survival 3) increase incubation success. Additional watershed objectives are: coordinating project prioritization and planning; securing non-Bonneville funding; providing school and public I&E programs; and planning and implementing project assessment and monitoring. Specific measurable outcomes are; a) decreased summer stream temperatures; b) increased resting and rearing habitat; c) increased juvenile salmonids over-wintering survival; and d) increased suitable spawning habitat. Additional benefits include ecological/hydrological functioning riparian and upland areas, increased public awareness and monitoring goals validating data for these attributes both short and long-term.

Section 8. Project description

a. Technical and/or scientific background

This proposal is for on-going restoration and monitoring of prioritized habitat. Asotin Creek is a fourth order tributary to the Snake River (Rm 145) which drains approximately 325 square miles of Asotin and Garfield Counties. The headwaters of Asotin Creek originate in the Blue Mountains and flow east into the Snake River at Asotin, Washington.

ESA listed stocks of spring chinook salmon, summer steelhead, and bull trout utilize Asotin Creek, which has been identified as a Genetic Sanctuary for steelhead under WDFW's current resource plan (Glen Mendell personal conversation). Charley Creek, an upper tributary, has the highest densities of juvenile steelhead in southeastern Washington according to local WDFW fisheries surveys (Glen Mendell). Spring chinook salmon utilize the watershed and parr were observed during 1998 snorkeling surveys, although only one redd was identified during 1998 sampling. A 1993 Forest Service survey documented the presence of bull trout in lower Asotin Creek, while the 1997 WDFW's Salmon and Steelhead Stock Inventory (SASSI) found them only in the North Fork and South Fork of Asotin Creek.

While the decline in numbers of anadromous salmonids can be attributed to downstream impacts (ocean conditions, harvests, predators, and dams), habitat quality and quantity in Asotin Creek is degraded. High summer stream temperatures, lack of quantity and quality resting and rearing pools containing large woody debris (LWD), and sediment deposition in spawning gravels were problems identified during the watershed analysis and are addressed in the *Plan.* The Lower Snake Co-Manager identified similar limiting factors in the FY 1999 Draft Annual Implementation Work Plan and they are addressed in our objectives.

On-going monitoring is being conducted by WSU, WDFW, NRCS, ACCD and Northwest Management including chemical and physical attributes, temperature, in-stream and riparian habitat, and upland sediment reduction practices to ensure project effectiveness.

FY 2000 activities include projects that will continue to move toward: 1) Reducing Summer In-Stream Temperatures to 18° C, 2) Increasing Quantity and Quality of Pools w/LWD to Nine Pools per Mile, and 3) Reducing Sediment Deposition in Spawning Gravels by Maintaining or Reducing Cropland Erosion.

Current and historical data is evaluated to determine priority on-the-ground restoration projects. Previous and proposed restoration techniques will continue to work together toward the goals, objectives and tasks of this proposal.

Lack of vegetative cover throughout the riparian zone along Asotin Creek and its tributaries contributes to high stream temperatures. 1995 aerial reconnaissance showed that canopy coverage was as low as 37% at the mouth of the creek. Throughout most of the stream areas it ranged from 40 to 68%. Some areas on Forest Service lands, on the North Fork, exceeded 75% canopy closure. Nearly the entire stream lacked the 75% canopy cover recommended for trout production (Raleigh et al., 1980).

Summer water temperatures increase stress and mortality at all salmonid lifestages. Laboratory studies indicate that juvenile chinook have an upper lethal limit of 77.2°F but become stressed and susceptible to mortality from diseases and parasites in even lower water temperatures in the wild (Beschta et al. 1987). Adult chinook may interrupt their upstream migration when temperatures exceed 68°F (Barrett 1995). Data from current temperature monitoring shows water temperatures exceeding 70°F in July and August. Reducing summer stream temperature is critical for salmonid survival.

Riparian stream shading will be restored in project areas by planting dormant stock, (consisting of native willow whips and cottonwood poles), and rooted material such as ponderosa pine, dogwood, and blue elderberry to meet Hydraulic Permit requirements of revegetating project sites. FY 2000 projects will include revegetation of riparian areas with willow varieties and conifers to be planted in the watershed at elevations where they are most adapted. Passive restoration, allowing natural revegetation, on state and federal lands has been our policy since fences are not needed to maintain these areas. However, due to local resource uses planting and fencing of the riparian area on private property needs to be accomplished. This proposal could include up to 9,000 tree and shrub planting and 15,000 linear feet of riparian fencing with alternative water developments.

Lack of pool habitat limits smolt production and adult resting areas in Asotin Creek. Initial watershed analysis revealed a low pool-riffle ratio. The results of a re-survey by McIntosh (1992) also indicated that there are now 34% fewer chinook holding pools in the 25 miles of mainstem and North Fork of Asotin Creek than there were in 1935. Since juvenile salmonid densities are directly related to pool size in small streams (Bjornn and Reiser 1991), creation of slack water (<15 cm/s; <0.5 fps; Espinosa 1988) with LWD and increasing pool habitat availability by placement of in-stream structures is a priority.

Anadromous and resident salmonids often spawn in limited reaches of a drainage while juveniles actively move, or are displaced downstream and occupy the most suitable areas (Bjorn and Reiser 1991). In riffle-run-pool streams, pool habitat should probably comprise at least 10-20% of the stream area. In 1997, nearly 71% of juvenile salmonids occupied pool habitats although pools only comprised 3.3% of the total available area in the Headgate Park reach of Asotin Creek (Garrett 1998). As pool size and volume decreases, juvenile salmonid abundance declines (Bjornn 1977; Konopacky 1984). Increasing pool habitat availability should result in greater abundance of rearing salmonids. Habitat restoration projects in the middle reaches are desirable because of fry seeding from up-stream sources.

FY 2000 proposed structures to increase the number of pools per mile include vortex rock weirs, root wad revetments, rock vanes, LWD recruitment, and off-channel rearing areas as identified by USFWS, WDFW, Nez Perce Tribe, and NRCS Watershed Planning Team. In-stream structures will be planned according to stream types and characteristics. Dave Rosgen's stream classification system will be used to describe geomorphic stream types (Rosgen 1996). This proposal could include up to 18 in-stream geomorphic restoration projects on two miles of spawning and rearing habitat on Asotin Creek.

Non-structural alternatives, including no action, have been considered at most sites. Techniques such as riparian planting and fencing will be sufficient in some sites, however no action may encourage landowners to continue to use equipment in-stream. To achieve the intent of the *Plan,* structural practices that will restore pool-riffle habitat conditions and channel stability are necessary. If the ACCD is allowed to address local concerns by

installing in-stream and riparian habitat structures, geomorphic pool and riparian floodplain habitat will recover without adverse impacts due to landowner misconceptions. Treatment locations have been identified by landowners, ACCD and cooperating agencies because they lack pool habitat, have eroded streambanks or threatened access to roads, buildings and/or dwellings. Lack of fish habitat and sediment introduction have made these areas a priority. Without technical assistance or cost-share funding, private landowners complete in-stream or riparian work with little or no fisheries habitat mitigation. Long-term channel stability will be achieved as more riparian buffers are established as a result of education about planting, fencing and grazing management plans.

In-stream sediment reduction is a goal outlined in the *Plan.* Moore (1993) observed excessive fine sediments in portions of Asotin Creek. The U.S. Forest Service surveys also showed localized problems on the upper Asotin Creek tributaries (ACMWP 1995). Isolated locations on the North Fork, South Fork, and Charlie Fork all had areas in excess of 35% embededdness. Intrusion of sediment into spawning gravels results in decreased incubation, filling of pools thereby limiting rearing and over-wintering space, and decreased food production for juvenile salmonids (ACMWP 1995).

Asotin Creek is geomorphically unstable due to pre-existing conditions and recent floods, in addition to resource utilization throughout the watershed. Floods have magnified this problem and produced a stream channel that is wider and shallower with erodible streambanks that increase erosion. Stabilization of these banks will reduce an immediate source of sediment to the creek. Rock vanes, vortex rock weirs, root wad revetments, and fish friendly techniques can be used to protect these areas while creating pools for habitat and decreased width and increased stream depth to reduce water temperatures. Revegetation and riparian fencing are further proposed at project sites to promote bank stability and increase stream shading for more desirable water temperatures. Upland sediment reduction practices such as sediment basin, terrace construction, direct seeding, grassed waterways and pasture/hayland planting will reduce fine sediment intrusion. FY 2000 proposal could include 25 upland restoration projects to reduce erosion.

Individual projects in this proposal will address habitat management activities identified in the Council's 1994 Fish and Wildlife Program (FWP), section 7.6D. They include increasing the quality and quantity of large pools with LWD, riparian vegetation planting, riparian fencing, upland sediment and erosion reduction practices such as sediment basins, direct seeding and terraces, improving water quality throughout the watershed, and increased public awareness. This proposal could include up to 40 individual projects targeting priority on-the-ground restoration projects within the watershed. Projects will complement previous and on-going projects to restore critical habitat.

The location of structures will follow those itemized in the *Plan,* Appendix H. The goals of the *Plan* are to restore riparian vegetation, establish nine pools with LWD per mile of stream reach, and stabilize streambanks through riparian plantings and fencing projects. These structures will be based on compatibility with geomorphic stream types in the *Plan,* Appendix L. By prioritizing these habitat restoration projects throughout the watershed, we are restoring fish and wildlife habitat.

b. Rationale and significance to Regional Programs

Continued protection and restoration of habitat in the Asotin Creek watershed is consistent with ISRP recommendations to the Council that emphasis be placed on projects that restore habitat. Watershed protection and restoration are principal objectives of this proposal and working relationships throughout the Asotin Creek basin allow completion of projects from ridge-top to ridge-top. Prioritized restoration projects will work in conjunction with (complement) previous and on-going funding and will be installed in areas, identified by local WDFW Managers, that benefit ESA listed species.

The *Plan* and requested Implementation Funding are based on the goals found in the 1994 FWP, section 7.7b, "Model Watersheds." Specifically this section speaks of "Collaborative" planning. Bonneville's initial investment in the "Model Watershed's" has resulted in increased habitat restoration funding for southeastern Washington. With proposed listing of other species, under the Endangered Species Act (ESA), logic dictates continued funding of projects built on cooperation between local citizen groups and agencies to offset restoration costs.

The habitat restoration goals are found in 1994 FWP, section 7.6D, stream morphology, bank stability, large pools, large woody debris, riparian vegetation, water quality, agricultural practices, sediment, land management and grazing. By reducing temperature through planting and fencing in addition to passive restoration on state and federal land, restoring in-stream habitat with pool forming structures, reducing cropland erosion with upland practices, and monitoring of projects we are on our way to correcting three limiting factors on Asotin Creek.

c. Relationships to other projects

This project proposal is to continue on-going restoration activities and will coordinate and integrate the *Plan* and Model Watershed Technical Lead funding. These work together to protect and restore fish and wildlife habitat in the Asotin Creek basin. The Technical Lead's duty is to bridge the gap between landowners and agency representatives on sensitive resource issues on Asotin Creek and its tributaries. The *Plan* provides the framework for such recovery.

Matching funds from the Washington State Legislature have been used to restore critical habitat throughout Asotin County. Without current cost-share incentives, priority habitat restoration projects would be impossible to install.

d. Project history (for ongoing projects)

In 1993, Asotin Creek watershed was selected as one of three eastern Washington Model Watersheds. In 1994 Bonneville contract #9202602, to develop a habitat restoration plan and fund a Model Watershed Coordinator totaling $50,000 /year for salaries, benefits, office supplies and travel. In 1995, the *Plan* was completed and in 1996 contract #9401800, for Eastern WA Habitat Restoration Projects totaling $170,000 / year for priority on-the-ground water quality, habitat restoration, revegetation and on-going monitoring projects. In 1998 the Coordination and Implementation Budgets were combined into contract #9401805, Enhance Habitat for Spring Chinook, Summer

Steelhead, and Bull Trout totaling $239,000, and the **FY 2000** proposal is entitled **Continued Implementation of Asotin Creek Watershed Projects.**

Asotin Creek watershed sponsored reports include:

Clearwater Company. 1993. *Asotin Creek Water Quality Monitoring.* Pullman, WA.
ACCD. 1995. *Asotin Creek Model Watershed Plan.* Clarkston, WA.
ACCD. 1996. *Evaluating 7 Early Action Streambank/Habitat Projects*. Clarkston, WA.
Northwest Management. 96-98. *Headgate Progress & Completion Reports.* Moscow, ID.
ACCD. 1997. *BPA Channel & Fish Habitat Improvements Asotin Creek.* Clarkston, WA.
ACCD. 1997. *BPA Sediment Basin Cleanouts in Asotin County, WA.* Clarkston, WA.
ACCD. 1997. *BPA Riparian Fencing Projects on Asotin Creek, WA.* Clarkston, WA
WSU. 1998. *Asotin Creek Water Quality Monitoring Project.* Pullman, WA.

Watershed Funding sources and Habitat Restoration Projects completed:

Funding Sources	**1996**	**1997**	**1998**
WA State Conservation Commission	$63,681.82	$27,571.60	$42,570.94
Bonneville Power Administration	*$109,267.64*	*$157,357.56*	*$206,399.33*
US Forest Service	$1,075.00	$5,000.00	$3,500.00
WA State HB 2496			$53,676.40
Asotin County Road Department			$3,500.00
Landowner Cash Match, Cost-Share	$35,840.91	$23,742.50	$22,654.30
Totals	**$209,865.37**	**$213,671.66**	**$332,300.97**
Habitat Restoration Projects			
New Projects	44	55	74
Operations and Maintenance Projects	0	61	9
# of Trees Planted	7,000	7,800	9,500
# of Pools Installed	78	66	139
Ft. of Habitat Restoration Installed	3,500 ft	2,775 ft	5,408 ft
Ft. of Riparian Fence Installed	1,300 ft	7,101 ft	16,600 ft
Alternative Water Developments	2	2	2
Ft. of Terraces Installed	6,300 ft	20,000 ft	20,500 ft
# of Sediment Basins Installed	4	25	7
# of Sediment Basins Cleaned	0	61	9
Pasture/Hayland Planting Acres	100 ac	212 ac	187 ac
Strip Crop Acres	0	0	70 ac
Direct Seeding Acres	0	0	850 ac

Priority, on-the-ground habitat restoration projects throughout the watershed have resulted in increased public and agency collaboration and awareness. Efforts during the past three years have not only restored habitat conditions but also fostered trust and credibility between private landowners and agency representatives; a critical element in a watershed with nearly two-thirds private ownership. The importance of maintaining this level of cooperation and trust cannot be overstated and requires on-going cost-share.

Monitoring and evaluations of Asotin Creek watershed restoration projects include:

1) WSU Water Quality Monitoring of 10 sites on Asotin Creek; temperature, coliforms, and suspended sediments are monitored twice a month at four sites (1, 2, 8, & 10); ammonia, nitrate, phosphorus, and total kjeldl nitrogen at all ten sites every two months; and discharge once per month at three sites (1, 9, & 10).
2) WDFW pre- and post-restoration projects for all 1998 sites. Measurements included; a) pool quality, b) pool area, c) maximum and average depths, d) mean pool depth, e) quantitative and qualitative counts of woody debris, and f) standard deviation of thalweg depth.
3) NRCS and ACCD monitoring of 1997 and 1998 meander reconstruction sites and one additional site each year. The M&E will include the following: a) bank and erosion pins for estimates of lateral migration, b) toe pins for vertical movement and measurement to the bank pins for estimate of streambank changes, c) scour chains to monitor incision, d) longitudinal profile referenced to two cross-sections for overall corridor changes, e) physical description of pools (width, depth & presence or absence of LWD, f) pebble counts in pool tailouts, and g) photo documentation, before and after pictures and riparian development.

The *Plan* was the first Bonneville basin-wide watershed restoration approach developed in Washington State that specifically addressed habitat protection and restoration for anadromous salmonids. The *Plan* is consistent with the habitat elements of the Council's *"Strategy for Salmon,"* CRITFC'S *"Wy Kan Ush Mi Wa Kish Wit,"* and Washington State's draft *"Wild Salmonid Policy."*

ACCD was named the lead agency to implement projects addressed in the *Plan* because conservation districts have strong connections to landowners and have the ability to implement on-the-ground solutions for fish habitat concerns on private property (Washington Water Research Center, 1996). The NRCS provides in-kind services to ACCD in the form of office space, vehicle use, phone service, technical assistance, project design, and construction inspection for projects. A Landowner Steering Committee (LOC) represents the views and needs of the local community. The Technical Advisory Committee (TAC) includes representatives from state, tribal, federal agencies and organizations.

e. Proposal objectives

This proposal requests funding for *9401805 Continued Implementation of Asotin Creek Model Watershed Projects.* The funding will be used for habitat restoration costs for FY 2000, administration, leveraged for further funding from state and local agencies, information and education, and monitoring. Specific project proposal objectives are:

1. **Reduce in-stream summer water temperatures to 18° C**
2. **Increase quantity and quality of pools w/LWD to nine pools per mile**
3. **Reduce sediment deposition in spawning gravels by maintain or reduce cropland erosion**

Coordination/Administration objectives include:

a. Continue coordination of Asotin Creek Model Watershed projects
b. Secure additional funding and cooperative partnerships
c. Provide watershed I&E programs to local schools and citizens
d. Planning, coordinating and implementing project assessments and monitoring

Partial fulfillment of these objectives has currently resulted in a collaborative approach to watershed restoration in Asotin Creek watershed. Outcomes include: 1) reports describing projects and restoration benefits; 2) successful matching of Bonneville funding to receive $125,000 under WA State HB 2496 funding for salmonid restoration; 3) collaboration with local schools for "Salmon in the Classroom", Envirothon competitions, and education of landowners, citizens and agency representatives about local concerns; and 4) on-going monitoring studies evaluating habitat project success and failures, temperatures, water quality attributes and evaluation of this information to identify priority areas and possible changes in direction of the *Plan* (Adaptive Management).

f. Methods

Objective #1: Reduce in-stream summer water temperatures to 18° C

Lower Snake Co-Managers Objective: Reduce pre-spawner mortality

Goals: 1) Limit stress for salmonids by: a) increasing habitat for adult passage/resting and spawning, and b) restore cover and resting pools (deeper and cooler) for juvenile rearing. 2) Increase long-term LWD recruitment to stream. 3) Reduce stream width:depth ratio (narrower and deeper channel). 4) Restore hydrologic function of floodplain and uplands.

Tasks:

- Riparian tree plantings to reduce stream temperatures, recruitment of LWD, and overall densities of root matrix along streams
- Jump-start LWD component by incorporating into streambanks and complex habitat restoration projects
- In-stream habitat restoration projects (increase number of pools consistent with geomorphic processes w/ LWD and decrease width:depth ratio)
- Riparian/floodplain management (alternative water developments and fencing)

Objective #2: Increase quantity and quality of pools w/ LWD to nine pools per mile.

Lower Snake Co-Managers Objectives: Increase juvenile survival

Goals: Restore pool habitat for resting and rearing salmonids.

Tasks:

- In-stream habitat restoration projects
  - Increase number of pools w/ LWD to improve over-winter survival
  - Decrease stream width and increase depth

- Identify cool water refugia and protect and restore in-stream and riparian habitat
- Develop and/or restore spring-fed off-channel rearing areas. Re-introduce cover component (LWD and riparian plantings)

- Riparian tree planting projects for LWD recruitment
- Riparian/floodplain management (alternative water developments and fencing)

Objective #3: Reduce sediment deposition in spawning gravels by maintaining or reducing cropland erosoin.

Lower Snake Co-Managers Objective: Increase incubation success

Goals: Restore spawning habitat, juvenile over-wintering habitat and macroinvertebrate production.

Tasks:

- Upland sediment reduction projects (sediment basins, terraces, strip-cropping and direct seeding) to limit fine sediment delivered to stream
- In-stream structures geomorphically designed to scour and sort spawning gravels and re-establish floodplains for long-term depositional features
- Riparian tree planting projects to stabilize streambank and recruit LWD
- Riparian/floodplain management (alternative water developments and fencing)

Objective #4: Continue coordination of Asotin Creek Model Watershed project prioritization and planning

Goals: Provide leadership and guidance to LOS and TAC Committees in carrying out riparian, in-stream and upland restoration projects.

Tasks:

- Administration and communication of watershed activities
- Coordinate with citizen/agency task groups to prioritize projects
- Develop project proposals describing assessment, restoration and monitoring projects
- Submit B.A. to NMFS for project concurrence
- Report M&E findings (analysis and validation)

Objective #5: Secure additional funding and cooperative partnerships outside the Asotin Creek watershed.

Goals: Develop riparian and upland habitat restoration opportunities for other priority Snake River ecoregions (common attributes and physical/cultural features; “Omernik” defined) in Asotin County.

Tasks:

- Continue matching funds with local and state dollars
- Initiate cost-share programs in high priority areas

Objective #6: Provide watershed information and education programs to local schools, citizens, and agency representatives

Tasks:

- Provide workshops to local schools, continue "Salmon in the Classroom" Project, sponsor Envirothon competition, and involve schools in assessment and monitoring programs
- Coordinate project tours and presentations (increase public awareness)
- Complete project reports assessing restoration projects success and failures
- Continue quarterly *Model Watershed Newsletters* informing interested parties and community of restoration projects and goals

Objective #7: Plan, coordinate, and implement project assessment and monitoring

Tasks:

- Continue Citizen/Technical Advisory Committee meetings to prioritize projects
- Identify high priority restoration projects
- Continue WSU monitoring of water quality, temperature parameters and suspended sediments
- Begin WDFW pre- and post-habitat assessments
- Continue 1997 and 1998 NRCS meander reconstruction project M&E
- Identify Innovative Monitoring of restoration projects
- Cold water refugia identification and assessment
- Further define reference site conditions
- Work with Nez Perce Tribe to identify projects and alternative funding

On-going monitoring is designed to address these questions:

- Are the numbers of ecologically functioning riparian areas increasing?
- Are in-stream and riparian restoration projects resulting in desired habitat?
- Have we increased the available habitat for juvenile salmonids?
- What is the status of water quality during base flows and storm events?
- Have we increased public awareness on importance of restoration management and projects for fish, wildlife, and water quality in Asotin County?
- Have we validated the desired future conditions?

g. Facilities and equipment

Current office space and equipment are sufficient to complete all tasks outlined in this proposal. The ACCD has access to new office space, vehicles, computers, scanner, and color printers. Field equipment such as a four wheeler and survey equipment is furnished by the NRCS. This proposal requests continued funding for coordination and administration of 1.05 FTE's, day-to-day office supplies, travel, and prioritized habitat restoration projects within Asotin Creek watershed!

h. Budget

FY 2000 continued budget proposal is consistent with previous Bonneville funding for the Asotin Creek watershed. This proposal does not request funding for indirect costs, office space, vehicles, or equipment because of the Memorandum of Understanding with NRCS which provides in-kind contributions to ACCD.

Historically, ACCD has used Bonneville funding coupled with WCC funding for one FTE (Model Watershed Coordinator/Technical Lead). Due to work schedules and successful cost-share programs the ACCD has hired an additional employee responsible for education and outreach (Admin. Assistant). Due to Model Watershed's success and landowner participation, the Technical Lead is required to allocate a majority of his time to Model Watershed projects.

Cost-share incentives are key to continued fish and wildlife habitat restoration on private property by offsetting private landowner costs. ACCD has offered cost-share to state and federal landowners (WDFW & USFS) in the watershed, but private landowner participation and funds expended are higher than the two agencies.

Justification for current budget requests are valid with Bonneville funds being used for cost-effective projects in resource manager's area of priority within watershed. Matching restoration funding from WCC, HB 2496, and USFS proves that current project are recognized and Bonneville's investment has been worthwhile.

Section 9. Key personnel

Bradley J. Johnson, District Manager/Asotin Creek Model Watershed Technical Lead, will manage the proposal's administration and habitat restoration budgets. Mr. Johnson has considerable expertise in planning and managing ecosystem restoration projects, assessments and monitoring of projects. Mr. Johnson has been employed as District Manager/Model Watershed Lead since July of 1996 and duties include: 1) District Administrator; 2) Coordinate project planning, installation, and monitoring; 3) Financial management and proposal preparation; and 4) Public outreach and communication of watershed activities. The Asotin County Board of Supervisors reviews Mr. Johnson's performance every six months based on progress in each of these areas.

Bradley J. Johnson - Asotin Creek Model Watershed Technical Lead.

Education: **B.S.,** Biology, Dickinson State University, Dickinson, ND, 1992.

Current Position and Duties: **Technical Lead,** Asotin Creek Model Watershed.

Responsible for overall project management and coordination for the Asotin Creek Watershed. Duties include project planning, securing required permits, coordinating installation, and monitoring projects; report of accomplishments to funding authorities; proposal preparation, fiscal management; public outreach and communication of watershed activities.

Employment History:

Washington Department of Fish and Wildlife Technician, Temporary position with Squawfish reward program, Clarkston, WA, 3/96 to 7/96

University of Idaho Fisheries Technician, Moscow, ID, Responsible for organizing and supervising crews for data collection, worked with graduate students evaluating incubation success, lower snake predation projects, and temperature monitoring. 10/92 to 3/95

Expertise:
Mr. Johnson has expertise in planning and managing ecosystem restoration projects, assessments and monitoring of projects. Mr. Johnson is a self-motivated individual interested in fish and wildlife restoration projects. The fisheries experience that he has received coupled with his background in agriculture and working relations with people have enabled him to work closely with private landowners on habitat restoration projects.

Recent Documents:
Johnson, B. J. 1996. **Brief Evaluation of 7 BPA Early Action Streambank/Habitat Projects on Asotin Creek,** Final Report for Bonneville, Clarkston, WA.

Johnson, B. J. 1997. **BPA Channel and Fish Habitat Improvements Completed on Asotin Creek,** Final Report for Bonneville, Clarkston, WA.

Johnson, B. J. 1997. **BPA Sediment Basin Cleanouts in Asotin County, WA,** Final Report for Bonneville, Clarkston, WA.

Johnson, B. J. 1997. **BPA Riparian Fencing Projects on Asotin Creek, WA,** Final Report for Bonneville, Clarkston, WA.

Johnson, B. J. 1998. **1998 BPA Habitat Restoration Projects Completed on Asotin Creek, WA,** Final Report for Bonneville, Clarkston, WA.

Section 10. Information/technology transfer

Information generated and received by the Asotin Creek Model Watershed Plan coordination and habitat restoration projects will be shared through:
1) Continued participation in Bonneville's Model Watershed and Focus Watershed coordination process;
2) Continued production and distribution of project and monitoring reports;
3) Continued participation in Columbia Basin technical groups and review process;
4) Continued participation in watershed conferences;
5) Continued publication of "Asotin Creek Model Watershed Newsletter";
6) Continued participation with local schools regarding watershed activities;
7) Continued television and media coverage of restoration projects;
8) Continued legislative, agency, tribal and citizens tours of projects; and
9) Publications in peer-reviewed and other journals.

Congratulations!